

Regional Super ESPC Saves Energy and Dollars at NASA Johnson Space Center

Regional contract enables Houston space flight center to reduce utility bills by nearly \$2 million per year while conserving energy and water

Overview

NASA should save approximately \$43 million in utility costs over the next 23 years at the Johnson Space Flight Center (JSC) in Houston, Texas, thanks to the largest delivery order signed to date under a U.S. Department of Energy (DOE) Regional Super Energy Savings Performance Contract (Super ESPC).



The NASA Johnson Space Flight Center in Houston is well known for its achievements in the U.S. space program (this 1994 photo shows the Space Shuttle Columbia during a launch).

The delivery order calls for many new and improved energy and water efficiency measures to be installed at JSC. The order was issued to Honeywell Inc. in February 1999 under a DOE Central Region Super ESPC that was awarded in July 1998. As a result of the combined efforts of staff from JSC, Honeywell, and DOE's Federal Energy Management Program (FEMP), this project will be saving energy and water as well as taxpayer dollars for many years to come.

Under the terms of this delivery order, Honeywell is installing energy-efficient lighting and compressed-air systems, implementing measures to reduce water consumption, and improving air-conditioning and lighting control systems in more than 140 buildings at JSC, the Sonny Carter Training Facility, and Ellington Field in Houston. Honeywell's initial investment of about \$20 million should save nearly \$2 million a year in energy and water costs.

As JSC begins realizing these cost savings, Honeywell will receive a portion of them in

payment for its investments. Additional investments and savings, via follow-up delivery orders, are also possible over the next several years.

Background

The project was originally designed to be carried out in phases under multiple contract awards. Eventually, however, the project team decided to make use of DOE's Central Region Super ESPC and combined the phases under one delivery order for the entire project.

Super ESPCs, which are streamlined indefinite delivery, indefinite quantity (IDIQ) contracts, can be either regional (see map on reverse for a list of contracts) or technology-specific. Regional Super ESPCs allow agencies to contract with competitively selected energy service companies (ESCOs) in their region for a variety of energy and water efficiency services. Technology-Specific Super ESPCs allow ESCOs to provide certain products (such as geothermal heat pumps or photovoltaic systems) to agencies anywhere in the nation. Both kinds of ESPCs can include maintenance, which is usually done by the ESCO.

Delivery orders signed under Super ESPCs specify the products and services that will be provided and estimate the agency's savings and payments to the ESCO. ESCOs assume the up-front capital costs in exchange for a portion of the Federal agency's energy cost savings. Payments are made to the ESCO over the life of the contract, which can be up to 25 years.

Project Summary

Honeywell staff worked closely with JSC's Energy Management Team at the Houston site to identify dozens of potential energy and water conservation measures and improvements. The JSC-Honeywell team then determined the feasibility of these measures, estimated their potential long-term savings, and prepared a guaranteed savings proposal.

After deciding to have the work done under the DOE Central Region Super ESPC, JSC requested final technical and financial review assistance from FEMP. The project team asked FEMP to help verify calculated savings, validate proposed measurement and verification methods, and confirm price schedules.



ESPC Case Study

U.S. Department of Energy

Office of Energy Efficiency and Renewable Energy



Working closely with the JSC-Honeywell team, FEMP staff validated the guaranteed savings proposal. One unexpected but not unusual result occurred when the FEMP/JSC/Honeywell team identified more than \$1 million worth of additional operations and maintenance savings. These savings were applied to the contract at no additional cost to JSC. The result was a win-win situation for all participants.

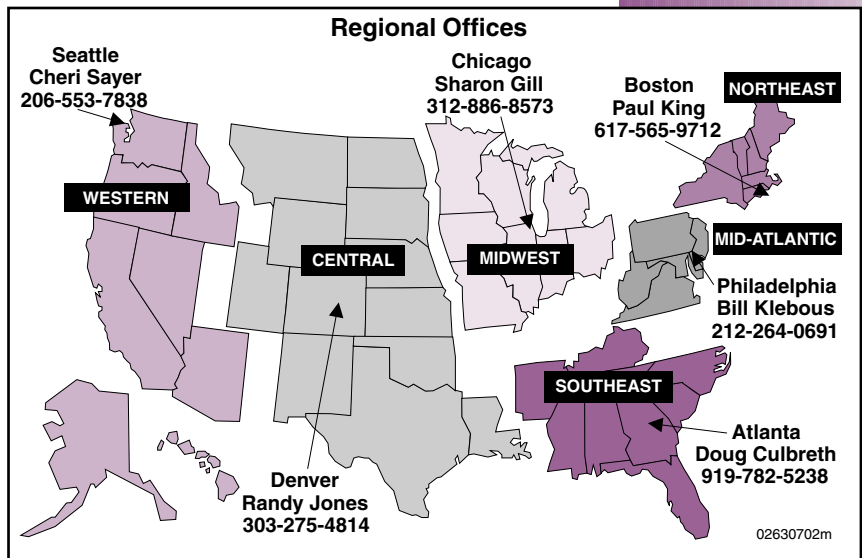
The project team then worked with contracting staff in the DOE Golden Field Office to prepare a delivery order under the Central Region Super ESPC. In the first phase of this project, Honeywell is installing energy-efficient lighting and compressed air systems, water efficiency measures, and improved air-conditioning controls.

Lessons learned

The FEMP Service Network (FSN) provided very valuable assistance. FSN's review of the technical proposal and its support during negotiations allowed JSC to make the award quickly and confidently, and this shaved several weeks off the process. JSC should realize about \$40,000 in energy savings each week. FSN's review also uncovered more than \$1 million in additional savings that can be applied to the contract, resulting in extra services and a shorter contract term.

Quality assurance

Measurement and verification (M&V) of energy savings are negotiated as part of the delivery order. Honeywell's M&V activities concentrated on commissioning and first-year performance. Honeywell will also place a Technical Resource Manager on the



site for the first five years of the contract, to ensure that the new equipment is operating effectively and to help develop new energy-saving measures for follow-up delivery orders.

Looking ahead

Because of this project's size, energy conservation measures will be commissioned incrementally in 10 steps over a 15-month construction period. This will allow savings and payments to begin sooner and shorten the term of the contract. After construction, Honeywell, JSC, and the site operations and maintenance (O&M) contractor will work together to deliver predicted savings and look for additional opportunities for energy efficiency improvements.

NASA is enthusiastic about Super ESPC. Completed and planned awards include those for the Glenn Research Center, Kennedy Space Center, Marshall Space Flight Center, and Ames Research Center.

For More Information

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NASA JSC is becoming more energy-efficient, thanks to a Regional Super Energy Savings Performance Contract.

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